



**COMBINED DECLARATION  
AND POWER OF ATTORNEY**

**(Original, Design, National Stage of PCT or CIP Application)**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:  
**ESTIMATION METHOD AND SYSTEM FOR COMPLEX SECURITIES USING LOW-DISCREPANCY DETERMINISTIC SEQUENCES**

the specification of which: *(complete (a), (b) or (c) for type of application)*

**Regular or Design Application**

(a) ☐ is attached hereto.

(b) ☒ was filed on February 9, 1998 as Application Serial No. 09/020,733 and was amended on *(if applicable)*.

**PCT Filed Application Entering National Stage**

(c) ☐ was described and claimed in International Application No. filed on and was amended on *(if applicable)*.

**Acknowledgment of Review of Papers and Duty of Candor**

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of the subject matter claimed in this application in accordance with Title 37, Code of Federal Regulations § 1.56.

☐ In compliance with this duty there is attached an information disclosure statement. 37 CFR 1.97.

**Priority Claim**

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed

*(complete (d) or (e))*

(d) ☒ no such applications have been filed.

(e) ☐ such applications have been filed as follows:

PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO SAID APPLICATION			
COUNTRY	APPLICATION NO.	DATE OF FILING (day, month, year)	DATE OF ISSUE (day, month, year)
			PRIORITY CLAIMED UNDER 35 USC 119 <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/>
			<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/>
			<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/>
ALL FOREIGN APPLICATION(S), IF ANY, FILED MORE THAN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO SAID APPLICATION			
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### Claim for Benefit of Prior U.S. Provisional Application(s)

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Provisional Application Number	Filing Date

### Continuation-In-Part

*(complete this part only if this is a continuation-in-part application)*

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08/902,921                      July 30, 1997                      pending  
(Application Serial No.)                      (Filing Date)                      (Status) (patented, pending, abandoned)

08/285,902                      August 4, 1994                      abandoned  
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### Power of Attorney

As a named inventor, I hereby appoint Dana M. Raymond, Reg. No. 18,540; Frederick C. Carver, Reg. No. 17,021; Francis J. Hone, Reg. No. 18,662; Joseph D. Garon, Reg. No. 20,420; Arthur S. Tenser, Reg. No. 18,839; Ronald B. Hildreth, Reg. No. 19,498; Thomas R. Nesbitt, Jr., Reg. No. 22,075; Robert Neuner, Reg. No. 24,316; Richard G. Berkley, Reg. No. 25,465; Richard S. Clark, Reg. No. 26,154; Bradley B. Geist, Reg. No. 27,551; James J. Maune, Reg. No. 26,946; John D. Murnane, Reg. No. 29,836; Henry Tang, Reg. No. 29,705; Robert C. Scheinfeld, Reg. No. 31,300; John A. Fogarty, Jr., Reg. No. 22,348; Louis S. Sorell, Reg. No. 32,439 and Rochelle K. Seide Reg. No. 32,300 of the firm of BAKER & BOTTS, L.L.P., with offices at 30 Rockefeller Plaza, New York, New York 10112, as attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith

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--	---

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF SOLE OR FIRST INVENTOR	LAST NAME Traub	FIRST NAME Joseph	MIDDLE NAME F.
RESIDENCE & CITIZENSHIP	CITY New York	STATE or FOREIGN COUNTRY New York	COUNTRY OF CITIZENSHIP United States
POST OFFICE ADDRESS	POST OFFICE ADDRESS Computer Science Department Columbia University	CITY New York	STATE or COUNTRY New York
DATE MAY 18, 1998	SIGNATURE OF INVENTOR Joseph F. Traub	ZIP CODE 10027	

FULL NAME OF SECOND JOINT INVENTOR, IF ANY	LAST NAME Paskov	FIRST NAME Spassimir	MIDDLE NAME	
RESIDENCE & CITIZENSHIP	CITY Scarsdale	STATE or FOREIGN COUNTRY New York	COUNTRY OF CITIZENSHIP Bulgaria	
POST OFFICE ADDRESS	POST OFFICE ADDRESS 6 Doris Drive	CITY Scarsdale	STATE or COUNTRY New York	ZIP CODE 10583
DATE	SIGNATURE OF INVENTOR			
FULL NAME OF THIRD JOINT INVENTOR, IF ANY	LAST NAME Vanderhoof	FIRST NAME Irwin	MIDDLE NAME F.	
RESIDENCE & CITIZENSHIP	CITY Towaco	STATE or FOREIGN COUNTRY New Jersey	COUNTRY OF CITIZENSHIP United States	
POST OFFICE ADDRESS	POST OFFICE ADDRESS 18 Two Bridges Road	CITY Towaco	STATE or COUNTRY New Jersey	ZIP CODE 07082
DATE	SIGNATURE OF INVENTOR			
FULL NAME OF FOURTH JOINT INVENTOR, IF ANY	LAST NAME Papageorgiou	FIRST NAME Anargyros	MIDDLE NAME	
RESIDENCE & CITIZENSHIP	CITY New York	STATE or FOREIGN COUNTRY New York	COUNTRY OF CITIZENSHIP Greece	
POST OFFICE ADDRESS	POST OFFICE ADDRESS Computer Science Department Columbia University	CITY New York	STATE or COUNTRY New York	ZIP CODE 10027
DATE April 25, 1998	SIGNATURE OF INVENTOR			
FULL NAME OF FIFTH JOINT INVENTOR, IF ANY	LAST NAME	FIRST NAME	MIDDLE NAME	
RESIDENCE & CITIZENSHIP	CITY	STATE or FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP	
POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE or COUNTRY	ZIP CODE
DATE	SIGNATURE OF INVENTOR			
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DATE	SIGNATURE OF INVENTOR			

Check proper box(es) for any added page(s) forming a part of this declaration

- ☐ Signature for ninth and subsequent joint inventors. Number of pages added \_\_\_\_\_.
- ☐ Signature by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor.  
Number of pages added \_\_\_\_\_.
- ☐ Signature for inventor who refuses to sign, or cannot be reached, by person authorized under 37 CFR 1.47.



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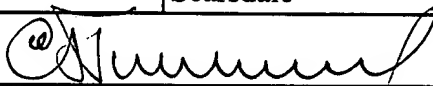
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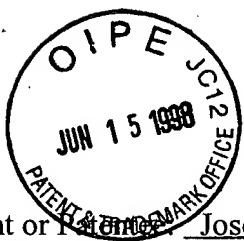
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Attorney's Docket No. A29823FWC-B  
Baker & Botts, L.L.P.

Applicant or Inventor Joseph F. Traub et al.

Serial or Patent No.: 09/020,733 Filed or Issued: February 9, 1998

For: PORTFOLIO STRUCTURING USING LOW-DISCREPANCY DETERMINISTIC SEQUENCES

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS  
(37 CFR 1.9(f) and 1.27(d)) - NONPROFIT ORGANIZATION**

I hereby declare that I am an official empowered to act on behalf of the nonprofit organization identified below:

NAME OF ORGANIZATION Columbia University

ADDRESS OF ORGANIZATION New York, NY 10027

TYPE OF ORGANIZATION \_\_\_\_\_

☒ UNIVERSITY OR OTHER INSTITUTION OF HIGHER EDUCATION

☐ TAX EXEMPT UNDER INTERNAL REVENUE SERVICE CODE [26 USC 501(a) and 501(c)(3)]

☐ NONPROFIT SCIENTIFIC OR EDUCATIONAL UNDER STATUTE OF STATE OF THE UNITED STATES OF AMERICA

(NAME OF STATE \_\_\_\_)

(CITATION OF STATUTE \_\_\_\_)

☐ WOULD QUALIFY AS TAX EXEMPT UNDER INTERNAL REVENUE SERVICE CODE (26 USC 501(a) and 501(c)(3)) IF LOCATED IN THE UNITED STATES OF AMERICA

☐ WOULD QUALIFY AS NONPROFIT SCIENTIFIC OR EDUCATIONAL UNDER STATUTE OF STATE OF THE UNITED STATES OF AMERICA IF LOCATED IN THE UNITED STATES OF AMERICA

(NAME OF STATE \_\_\_\_)

(CITATION OF STATUTE \_\_\_\_)

I hereby declare that the nonprofit organization identified above qualifies as a nonprofit organization as defined in 37 CFR 1.9(e) for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code with regard to the invention entitled PORTFOLIO STRUCTURING USING LOW-DISCREPANCY DETERMINISTIC SEQUENCES by inventor(s) Joseph F. Traub, Spassimir Paskov, Irwin F. Vanderhoof and Anargyros Papageorgiou described in

☐ the specification filed herewith

☒ Application Serial No. 09/020,733, filed February 9, 1998.

☐ Patent No. \_\_\_, issued \_\_\_.

I hereby declare that the rights under contract or law have been conveyed to and remain with the nonprofit organization with regard to the above identified invention.

If the rights held by the nonprofit organization are not exclusive, each individual, concern or organization having rights to the invention is listed below\* and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9(c) or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e). \*Note: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

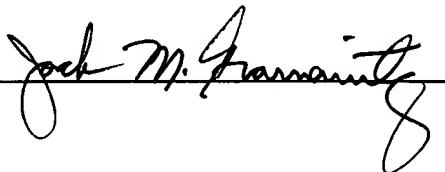
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I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING Jack M. GranowitzTITLE IN ORGANIZATION Executive Director, Columbia Innovation EnterpriseADDRESS OF PERSON SIGNING Columbia University, Engineering Terrace - 363, New York, NY 10027

SIGNATURE



DATE

April 15, 1998